DTV PFRM APPLICATION AND VHF INTERFERENCE STUDIES FOR THE DIGITAL TELEVISION BROADCAST STATION WABW-DT TO OPERATE ON DTV CHANNEL 5 WITH AN ERP OF 4.5 KW AT AN ANTENNA HEIGHT RADIATION CENTER OF 474.4 METERS ABOVE AVERAGE TERRAIN PELHAM, GEORGIA

(GEORGIA PUBLIC TELECOMMUNICATIONS COMMISSION)

KESSLER & GEHMAN ASSOCIATES, INC.
TELECOMMUNICATIONS CONSULTING ENGINEERS

KGA

20010212

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ENGINEERING TECHNICAL STATEMENT PREPARED BY WILLIAM T. GODFREY OF THE FIRM KESSLER AND GEHMAN ASSOCIATES, INC., TELECOMMUNICATIONS CONSULTING ENGINEERS IN CONNECTION WITH THE GEORGIA PUBLIC TELECOMMUNICATIONS COMMISSION'S (GPTC) DTV APPLICATION FOR A CONSTRUCTION PERMIT IN SUPPORT OF THE WABW-DT PETITION FOR RULE MAKING WHICH SEEKS AUTHORIZATION TO AMEND THE DTV TABLE OF ALLOTMENTS IN ORDER TO SUBSTITUTE THE PROPOSED DTV VHF CHANNEL 5 FOR THE ALLOTTED DTV UHF CHANNEL 20 AND CO-LOCATE AT THE WCTV-TV CHANNEL 6 TOWER SITE LOCATED IN METCALF, GEORGIA.

The firm Kessler and Gehman Associates, Inc., has been retained by the Georgia Public Telecommunications Commission (GPTC), Atlanta, Georgia in order to prepare engineering studies and the engineering portion of a digital television (DTV) application for a construction permit in support of the WABW-DT Petition for Rule Making (PFRM) which respectfully requests and seeks authorization for an amendment of the DTV Table of Allotments by substituting the proposed DTV VHF Channel 5 for the allotted DTV UHF Channel 20 and to co-locate at the WCTV-TV Channel 6 tower site located in Metcalf, GA.

Discussion

The GPTC is the licensee of nine NTSC broadcast stations and has been assigned a paired DTV channel for each of the nine stations. The enclosed WABW-DT application for the GPTC is just one of six PFRM applications requesting a change from its assigned UHF channel to a desired VHF channel. Kessler and Gehman Associates, Inc. initially conducted a detailed spacing study and determined that two of the nine GPTC stations presently would not be able to convert to VHF without causing above *de minimis*[1] interference to one or more applicable surrounding station(s). Of the nine DTV channels allotted to the GPTC, one station was assigned a VHF channel. Therefore, the GPTC is requesting a "Fleet VHF Conversion" of six of its nine broadcast stations in order to utilize improved signal coverage, heavily reduce support structure upgrade expenses, save on equipment and operational costs and continue digital VHF operation on the proposed channels after the DTV transition has ceased.

Authorization of the "Fleet VHF conversion" will equip the GPTC with seven VHF stations and will serve the public interest significantly with huge savings in tax dollars ranging from the substantial amount of money saved during the DTV purchasing/building phase to the magnitude of electrical savings that low power VHF transmitters offer over high power UHF transmitters. Conversion of the two remaining UHF channels to VHF shall be pursued after the DTV transition when spectrum becomes available so that the GPTC can simulcast efficiently on all nine VHF stations to the entire state of Georgia and beyond.

The objective of the enclosed DTV PFRM application is to amend the DTV Table of Allotments as follows: (1) substitute DTV Channel 5 for assigned DTV Channel 20; (2) change effective radiated power (ERP) from assigned 273.3kW to 4.5kW using a directional antenna (cardioid) with the main lobe oriented toward N305°E; (3) change the antenna radiation center (R/C) height above average terrain (HAAT) from the assigned 378.0 meters to 474.4 meters; and 4) to co-locate on the WCTV-TV Channel 6 tower site in order to prevent above de minimis interference to WCTV-TV and to gain a valuable portion of southwest Georgia and northern Florida, which has been unattainable with NTSC and is not predicted to receive

[1] *De minimis* interference is defined as interference to such stations affecting less than two percent of the population they serve. Where a station is receiving interference to between eight and ten percent of the population it would otherwise serve, additional interference is considered *de minimis* if it does not cause interference to the station to exceed the ten-percent threshold.

coverage from the allotted DTV facility or the pending DTV application that is currently on file with the FCC.

The GPTC is licensed to operate WABW-TV on UHF, NTSC Channel 14(-) with an ERP of 5,000kW at an antenna height R/C of 378.0 meters AAT using a directional antenna. The assigned principal community for WABW is Pelham, Georgia and the file number for WABW-TV is BLET19881018KE.

According to the initial allotment plan and reference coordinates (DTV Table of Allotments) set forth in Appendix B of the *Sixth Report and Order* in MM Docket 87-268, FCC 97-115, adopted April 3, 1997, WABW is allotted UHF, DTV Channel 20 at an antenna height R/C of 378.0 meters AAT and an ERP of 273.3kW in order to replicate its licensed UHF, Channel 14 Grade B Contour.

The GPTC has a pending DTV Channel 20 application on file (file number BPEDT-20000501AHY), which requests an ERP of 434.7kW at an antenna height radiation of 378.0 meters AAT using a directional antenna. The enclosed PFRM application shall supersede the pending DTV application on file with the FCC.

Transmitter

It is proposed to side-mount a Dielectric model THA-C3-5/15-1 circularly polarized, directional (cardioid oriented at N305E°), VHF, DTV antenna on the existing WCTV-TV support structure owned by WCTV-TV. The tower is registered with the FCC and has a registration number of 1019981. The support structure is located at 30 Roddenberry Rd, 3.5 miles southwest of Metcalf, GA. The GPTC's proposed antenna height radiation center is 457.2 meters above ground level (AGL). The antenna's highest point will extend to 490.2 meters AGL and the overall height of the structure will extend to 609.6 meters AGL as depicted in Exhibit 3's elevation view of the support structure

Interference Studies

The enclosed interference studies were computed using a Pentium Pro, 300 MHz, 128-megabyte, Pentium II processor. The calculations were performed using V-Soft Communication's Probe II, professional signal propagation software and interference studies program, which complies with the FCC mandated application-processing guidelines for digital television. This software is in accordance with the standards established in the FCC Public Notice #3060-0841 pertaining to DTV studies and DTV application preparation dated August 10, 1998.

Initial spacing studies, which considered DTV allotments (allot), DTV/NTSC licenses (lic), DTV/NTSC construction permits (cp), DTV/NTSC applications (app) and Class A/Class A-eligible low power television (LPTV) stations in the applicable areas surrounding Metcalf, GA revealed that VHF Channel 5 was a possible option for the GPTC station. After the spacing studies were completed additional studies were conducted to verify that the proposed station met the principal community coverage requirements of §73.625(a) in the Federal Communications Commission's (FCC) rules. Exhibit 11 depicts the proposed WABW-DT F(50,90) 28dBuV/m noise limited contour and verifies that the proposed station's noise limited contour fully encompasses the assigned principal community of Pelham, GA. After it was determined that the principal community coverage requirement was met, we performed detailed interference studies on all applicable surrounding stations using the terrain dependent Longley-Rice, point-to-point propagation algorithm detailed in the FCC's Office of Engineering and Technology Bulletin Number 69 (OET 69).

The initial interference studies predicted that the proposed WABW-DT may cause interference to the stations listed below (Exhibit 12) and therefore, are the stations we performed detailed interference studies on to verify that all interference remains within the *de minimis* standard:

• WAGA-TV (CP) • WJJN-LP (Class A eligible) • WUFT-TV (LIC) • WKRG-TV (LIC)

Exhibit 12 is a pictorial view of all applicable surrounding stations that are predicted to receive interference from WABW-DT using the proposed azimuth pattern with an ERP of 4.5kW at an antenna R/C HAAT of 474.4 meters. Exhibit 12A is a tabular exhibit which identifies the potential stations that may receive interference from the proposed WABW-DT, including Class A and Class A-eligible LPTV stations. Since this study did not take masking into account, each station was studied in detail in order to determine the exact amount of *unique interference*[2] caused to each station from the proposed WABW-DT.

NOTE: Starting from Exhibit 12, each pictorial exhibit will also be followed by a tabulation exhibit. For example, Exhibit 15 will be a pictorial exhibit and Exhibit 15A will be a tabulation exhibit.

Exhibits 13 and 14 are studies showing interference from all stations to the WKRG-TV (LIC) station without and with WABW-DT respectively. Exhibit 13 shows that without WABW-DT, populations of zero (0.0) people are receiving DTV only interference and the interference free population is 1,308,723. Exhibit 14 shows that with WABW-DT, populations of 25,140 people are receiving DTV only interference and the interference free population is 1,283,583. Therefore, WABW-DT causes [1,308,723 (IX free without WABW-DT) – 1,283,583 (IX free with WABW-DT) = 25,140] interference to a total of 25,140 people. Exhibits 13 and 14 calculated the WKRG-TV baseline population to be 1,314,313. Therefore, the total amount of unique interference caused by WABW-DT is [25,140/1,314,313] 1.91% ≤ 2.0% and thus, all requirements under the definition of *de minimis* have been met. Exhibit 14 concludes that the total interference caused to WKRG-TV from all stations including WABW-DT is [25,140/1,314,313] 1.91% ≤ 10% and thus, all requirements under the definition of the *10% de-minimis* standard have been met.

Exhibits 15 and 16 are studies showing interference from all stations to the WUFT-TV (LIC) station without and with WABW-DT respectively. Exhibit 15 shows that without WABW-DT, populations of zero (0.0) people are receiving DTV only interference and the interference free population is 1,164,297. Exhibit 16 shows that with WABW-DT, populations of 8,346 people are receiving DTV only interference and the interference free population is 1,155,951. Therefore, WABW-DT causes [1,164,297 (IX free without WABW-DT) – 1,155,951 (IX free with WABW-DT) = 8,346] interference to a total of 8,346 people. Exhibits 15 and 16 calculated the WUFT-TV baseline population to be 1,201,834. Therefore, the total amount of unique interference caused by WABW-DT is [8,346/1,201,834] 0.694% ≤ 2.0% and thus, all requirements under the definition of *de minimis* have been met. Exhibit 16 concludes that the total interference caused to WUFT-TV from all stations including WABW-DT is [8,346/1,201,834] 0.694% ≤ 10% and thus, all requirements under the definition of the *10% de-minimis* standard have been met.

Exhibits 17 and 18 are studies showing interference from all stations to the WJJN-LP (Class A) station without and with WABW-DT respectively. Exhibit 17 shows that without WABW-DT, populations of zero (0.0) people are receiving DTV only interference and the interference free population is 55,175. Exhibit 18 shows that with WABW-DT, populations of zero (0.0) people are receiving DTV only interference and the interference free population is still 55,175. Therefore, WABW-DT causes [55,175 (IX

[2] Unique interference is defined as the predicted interference a DTV station would cause beyond the amount of interference "built into" the DTV allotment table.

free without WABW-DT) – 55,175 (IX free with WABW-DT) = 0.0] interference to a total of zero (0.0) people. Exhibits 17 and 18 calculated the WJJN-LP baseline population to be 54,702. Therefore, the total amount of unique interference caused by WABW-DT is [0.0/54,702] 0.0% ≤ 0.5% and thus, all requirements under the alternate methods of meeting requirements to protect Class A stations have been met.

Since the proposed WABW-DT Channel 5 F(50,10) 28dBuV/m interfering contour does overlap the desired WJJN-LP Class A station's F(50,50) 62dBuV/m contour, a waiver is being requested based on the alternate methods authorized for waiver requests supported by terrain shielding, Longley-Rice propagation model interference studies and the OET Bulletin 69 method with a 0.5% population reduction rounding tolerance. As mentioned above and demonstrated in Exhibits 17 and 18, the proposed WABW-DT complies with the alternate methods authorized for waiver requests.

Exhibits 19 and 20 are studies showing interference from all stations to the WAGA-TV (CP) station without and with WABW-DT respectively. Exhibit 19 shows that without WABW-DT, populations of zero (0.0) people are receiving DTV only interference and the interference free population is 3,358,926. Exhibit 20 shows that with WABW-DT, populations of 9,596 people are receiving DTV only interference and the interference free population is 3,349,330. Therefore, the proposed WABW-DT causes [3,358,926 (IX free without WABW-DT) – 3,349,330 (IX free with WABW-DT) = 9,596] interference to a total of 9,596 people. Exhibits 19 and 20 calculated the WAGA-TV baseline population to be 3,586,435. Therefore, the total amount of unique interference caused by the proposed WABW-DT is [9,596/3,586,435] 0.268% ≤ 2.0% and thus, all requirements under the definition of *de minimis* have been met. Exhibit 20 concludes that the total interference caused to WAGA-TV from all stations including WABW-DT is [9,596/3,586,435] 0.268% ≤ 10% and thus, all requirements under the definition of the *10% de-minimis* standard have been met.

Exhibits

Exhibits 1 and 2 represent WABW-DT's administration data, antenna and antenna structure specifications as per §V-D item 9 in the DTV Broadcasting Engineering Data portion of the application regarding directional antennas and beam tilt.

Exhibit 3 depicts the profile view of the proposed antenna on the antenna structure with all the appropriate elevations as per §V-D item 8 in the DTV Broadcasting Engineering Data portion of the application regarding supporting structures and elevations.

Exhibits 4 and 5 display the azimuth pattern and the azimuth pattern tabulation respectively.

Exhibits 6 and 7 display the elevation pattern and the elevation pattern tabulation respectively.

Exhibits 8 and 9 display the ERP/dBk pattern and tabulation respectively.

Exhibit 10 depicts the site location of the proposed WABW-DT site on a 7.5-Minute (Series) Topographic Map as per §V-D item 17 in the DTV Broadcasting Engineering Data portion of the application regarding topographic maps.

Exhibit 11 depicts the proposed WABW-DT coverage contour, boundaries of the principal community to be served, and the proposed transmitting location with radials every 45° as per §V-D item 18 in the DTV Broadcasting Engineering Data portion of the application regarding Sectional Aeronautical Charts.

Exhibits 12 through 20 are detailed interference studies and demographic results of WABW-DT to all applicable stations.

Environmental Impact

The proposed construction will have no significant environmental impact as defined in §1.1307 of the FCC Rules. The DTV transmitter, 3-inch (50-ohm) transmission line and antenna system will produce an ERP of 4.5kW. Assuming that the maximum lobe of radiation is oriented at the base of the tower, it will produce a power density six feet above the ground of 0.001 mW/cm^2. This is only 0.08% of the maximum permissible exposure (MPE) authorized by the American National Standards Institute (ANSI). Since the proposed operation of WABW-DT Channel 5 will not exceed 5.0% of the MPE limit for population/uncontrolled at any point on the ground, WABW-DT is not considered to be a "significant contributor" to the RF exposure environment pursuant to OET Bulletin 65, Edition 97-01. Therefore, contributions of exposure from other sources were not accounted for in this analysis. It is safe to conclude that the emissions will be insignificant and well within the maximum allowable requirements.

If other antennas are placed on the tower in the future, the applicant will cooperate with those users by reducing or completely terminating the power to the antenna when maintenance workers are in danger from the electromagnetic radiation emanating from the antenna. The tower will be enclosed within a fence with warning signs posted at the locked gate.

Certification

The applicant accepts full responsibility for the elimination of any objectionable interference including that caused by intermodulation to facilities in existence or authorized prior to the grant of this application.

This technical statement was prepared by William T. Godfrey, Telecommunications Consultant with Kessler and Gehman Associates, Inc. having offices in Gainesville, Florida and has been working in the field of radio and television broadcast consulting since 1998. He graduated from the University of North Florida with a Bachelor of Arts degree in Criminal Justice and a minor in Mathematics and received a Commission in the Aviation Branch of the United States Army in 1993. As a Professional in the field of Telecommunications and as a Captain in the United States Army, he states under penalty of perjury that the information contained in this report is true and correct to the best of his knowledge and belief.

KGA

KESSLER AND GEHMAN ASSOCIATES, INC.

WILLIAM T. GODFREY
Telecommunications Consultant

12 February, 2001

WABW-DT
PELHAM, GA

ENGINEERING SPECIFICATIONS

A. ***Transmitter Site:***
Geographic coordinates determined by licensed surveyor (NAD 27):

North Latitude	**30° 40' 13"**
West Longitude	**83° 56' 26"**

Transmitter Site Address: **30 Roddenberry Rd, 3.5 miles SW of Metcalf, GA**

B. ***Main Studio Site Address:*** **260 14th Street N.W., Atlanta, GA 30318.**

C. ***Proposed Facility:***

DTV Channel	Number	**5**
	Frequency	**76 - 82 MHz**

D. ***Antenna Height:***

Height of Site Above Mean Sea Level (AMSL)	**67.6 M**
Overall Height of Structure Above Ground (including all appurtenances)	**609.6 M**
Overall Height of Structure Above Mean Sea Level (including all appurtenances)	**677.2 M**
Height of Site Above Average Terrain	**17.2 M**
Antenna Height Radiation Center (R/C) Above Ground	**457.2 M**
Antenna Height R/C Above Mean Sea Level	**524.8 M**
Average of All Non-Odd Radials	**50.4 M**
Antenna Height R/C Above Average Terrain	**474.4 M**

E. ***System Parameters – Horizontal Polarization:***

Transmitter Power Required	**0.82 kW**
Maximum Power Input to Antenna	**0.52 kW**
Total System Loss	**2.02 dB**
Transmission Line Efficiency	**62.8%**
Maximum Antenna Gain in Beam Maximum	**9.40 dB**
Maximum Antenna Gain in Horizontal Plane	**9.34 dB**
Maximum Effective Radiated Power	**6.53 dBk**
In Beam Maximum	**4.5 kW**
Maximum Effective Radiated Power	**6.47 dBk**
In Horizontal Plane	**4.4 kW**

WABW-DT
PELHAM, GA

DATA FOR PROPOSED DTV DIRECTIONAL TRANSMITTING ANTENNA

A. ***Antenna:*** Dielectric THA-C3-5/15-1, Circularly Polarized, Directional (Cardioid N305°E), Side-mount Antenna.

B. ***Electrical Beam Tilt:*** 0.5°

C. ***Mechanical Beam Tilt:*** 0.0°

D. ***Maximum Power Gain*** **Horizontal Polarization**

Maximum:	8.71 (9.40 dB)
Horizontal:	8.59 (9.34 dB)

E. ***Length:*** 66.0 feet (20.1 meters) not including appurtenances.

F. ***Average Power DTV:*** 0.82kW

G. ***Null Fill:*** 7.7%

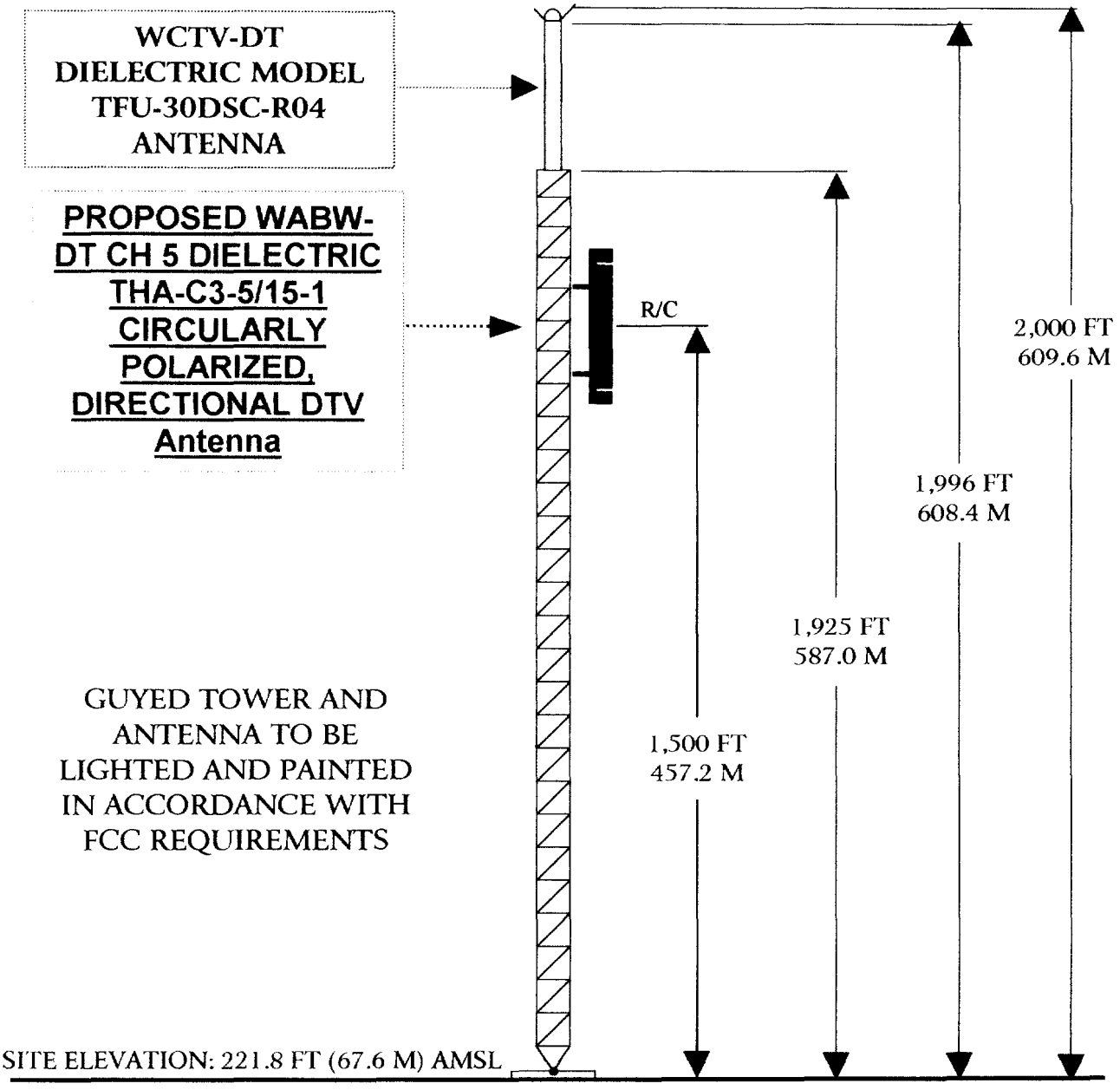
H. ***Transmission Line:*** 3" 50-ohm Heliax.

I. ***Transmission Line Loss:*** 0.127dB/100-feet

J. ***Total Transmission Line:*** 1,590 feet

K. ***Transmission Line Attenuation:*** 2.02 dB

ELEVATION VIEW



OVERALL HEIGHT AGL:	609.6 M
OVERALL HEIGHT AMSL:	677.2 M
RADIATION CENTER AGL:	457.2 M
RADIATION CENTER AMSL:	524.8 M
RADIATION CENTER AAT	474.4 M
AVERAGE TERRAIN:	50.4 M

COORDINATES:

N. LATITUDE 30 ° 40 ' 13 "

W. LONGITUDE 83 ° 56 ' 26 "

Antenna Structure Registration Number:
1019981

NOTE: NOT TO SCALE

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WABW-DT

PELHAM, GEORGIA

20010209 EXHIBIT 3

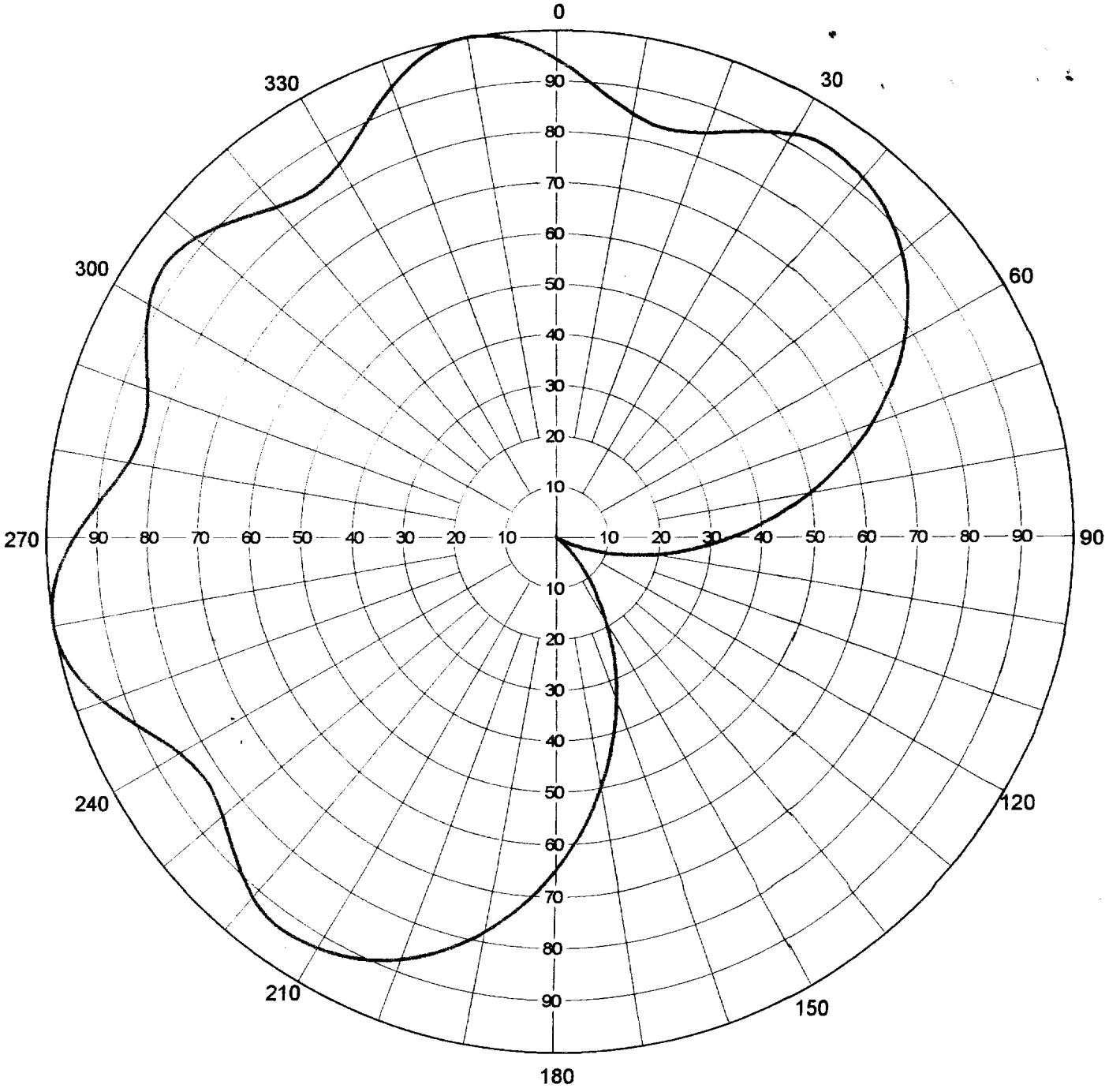
Exhibit No.
EXHIBIT 4

Dielectric

Date	**09 Feb 2001**		
Call Letters	**WABW-DT**	Channel	**5**
Location	**PELHAM**		
Customer	**GPTC**		
Antenna Type	**THA-C3-5/15-1**		

AZIMUTH PATTERN

RMS Gain at Main Lobe	**1.70 (2.30 dB)**	Frequency	**79 MHz**
Calculated / Measured	**Calculated**	Drawing #	**THA-C3**



Remarks:

EXHIBIT 4

Exhibit No.
EXHIBIT 5

Dielectric

Date	**09 Feb 2001**		
Call Letters	**WABW-DT**	Channel	**5**
Location	**PELHAM**		
Customer	**GPTC**		
Antenna Type	**THA-C3-5/15-1**		

TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing # **THA-C3**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.943	45	0.908	90	0.343	135	0.040	180	0.652	225	0.883	270	0.943	315	0.883
1	0.933	46	0.902	91	0.328	136	0.047	181	0.666	226	0.876	271	0.933	316	0.876
2	0.923	47	0.897	92	0.313	137	0.055	182	0.680	227	0.868	272	0.923	317	0.868
3	0.912	48	0.890	93	0.298	138	0.064	183	0.694	228	0.861	273	0.912	318	0.861
4	0.901	49	0.884	94	0.283	139	0.073	184	0.707	229	0.855	274	0.901	319	0.855
5	0.891	50	0.877	95	0.268	140	0.082	185	0.720	230	0.849	275	0.891	320	0.849
6	0.881	51	0.869	96	0.254	141	0.092	186	0.733	231	0.844	276	0.881	321	0.844
7	0.872	52	0.861	97	0.239	142	0.102	187	0.746	232	0.839	277	0.872	322	0.839
8	0.863	53	0.852	98	0.225	143	0.113	188	0.758	233	0.836	278	0.863	323	0.836
9	0.856	54	0.844	99	0.212	144	0.124	189	0.770	234	0.834	279	0.856	324	0.834
10	0.849	55	0.834	100	0.198	145	0.135	190	0.782	235	0.833	280	0.849	325	0.833
11	0.843	56	0.825	101	0.185	146	0.147	191	0.793	236	0.834	281	0.843	326	0.834
12	0.839	57	0.814	102	0.172	147	0.159	192	0.804	237	0.836	282	0.839	327	0.836
13	0.836	58	0.804	103	0.159	148	0.172	193	0.814	238	0.839	283	0.836	328	0.839
14	0.834	59	0.793	104	0.147	149	0.185	194	0.825	239	0.843	284	0.834	329	0.843
15	0.833	60	0.782	105	0.135	150	0.198	195	0.834	240	0.849	285	0.833	330	0.849
16	0.834	61	0.770	106	0.124	151	0.212	196	0.844	241	0.856	286	0.834	331	0.856
17	0.836	62	0.758	107	0.113	152	0.225	197	0.852	242	0.863	287	0.836	332	0.863
18	0.839	63	0.746	108	0.102	153	0.239	198	0.861	243	0.872	288	0.839	333	0.872
19	0.844	64	0.733	109	0.092	154	0.254	199	0.869	244	0.881	289	0.844	334	0.881
20	0.849	65	0.720	110	0.082	155	0.268	200	0.877	245	0.891	290	0.849	335	0.891
21	0.855	66	0.707	111	0.073	156	0.283	201	0.884	246	0.901	291	0.855	336	0.901
22	0.861	67	0.694	112	0.064	157	0.298	202	0.890	247	0.912	292	0.861	337	0.912
23	0.868	68	0.680	113	0.055	158	0.313	203	0.897	248	0.923	293	0.868	338	0.923
24	0.876	69	0.666	114	0.047	159	0.328	204	0.902	249	0.933	294	0.876	339	0.933
25	0.883	70	0.652	115	0.040	160	0.343	205	0.908	250	0.943	295	0.883	340	0.943
26	0.891	71	0.637	116	0.033	161	0.359	206	0.913	251	0.953	296	0.891	341	0.953
27	0.898	72	0.623	117	0.027	162	0.374	207	0.917	252	0.962	297	0.898	342	0.962
28	0.905	73	0.608	118	0.021	163	0.390	208	0.921	253	0.970	298	0.905	343	0.970
29	0.911	74	0.593	119	0.016	164	0.405	209	0.924	254	0.978	299	0.911	344	0.978
30	0.917	75	0.578	120	0.012	165	0.421	210	0.927	255	0.984	300	0.917	345	0.984
31	0.922	76	0.562	121	0.008	166	0.437	211	0.929	256	0.990	301	0.922	346	0.990
32	0.927	77	0.547	122	0.005	167	0.453	212	0.931	257	0.994	302	0.927	347	0.994
33	0.930	78	0.531	123	0.002	168	0.469	213	0.932	258	0.997	303	0.930	348	0.997
34	0.932	79	0.516	124	0.001	169	0.484	214	0.933	259	0.999	304	0.932	349	0.999
35	0.933	80	0.500	125	0.000	170	0.500	215	0.933	260	1.000	305	0.933	350	1.000
36	0.933	81	0.484	126	0.001	171	0.516	216	0.932	261	0.999	306	0.932	351	0.999
37	0.932	82	0.469	127	0.002	172	0.531	217	0.930	262	0.997	307	0.930	352	0.997
38	0.931	83	0.453	128	0.005	173	0.547	218	0.927	263	0.994	308	0.927	353	0.994
39	0.929	84	0.437	129	0.008	174	0.562	219	0.922	264	0.990	309	0.922	354	0.990
40	0.927	85	0.421	130	0.012	175	0.578	220	0.917	265	0.984	310	0.917	355	0.984
41	0.924	86	0.405	131	0.016	176	0.593	221	0.911	266	0.978	311	0.911	356	0.978
42	0.921	87	0.390	132	0.021	177	0.608	222	0.905	267	0.970	312	0.905	357	0.970
43	0.917	88	0.374	133	0.027	178	0.623	223	0.898	268	0.962	313	0.898	358	0.962
44	0.913	89	0.359	134	0.033	179	0.637	224	0.891	269	0.953	314	0.891	359	0.953

Remarks:

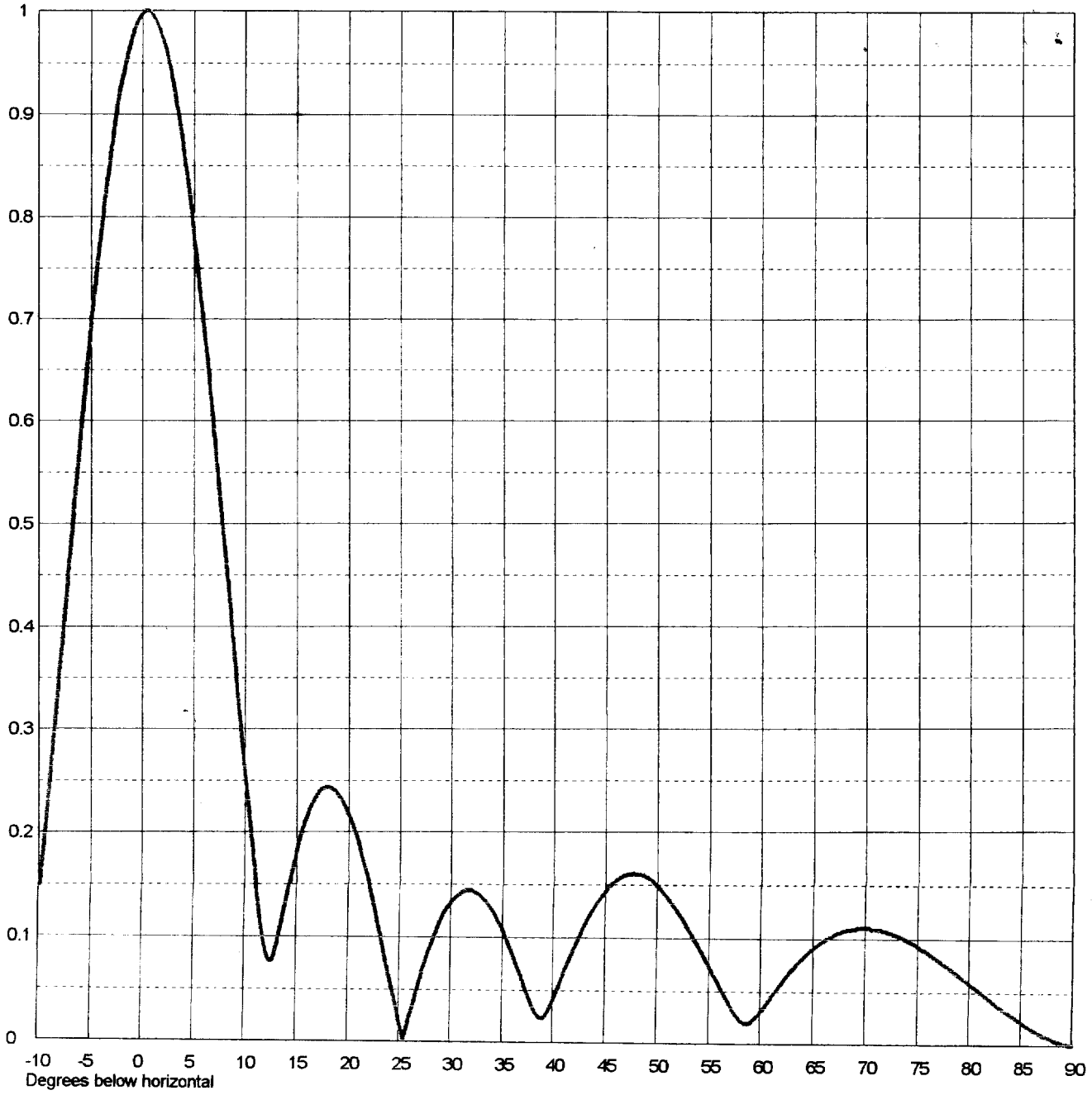
Exhibit No.
EXHIBIT 6

Dielectric

Date	**09 Feb 2001**		
Call Letters	**WABW-DT**	Channel	**5**
Location	**PELHAM**		
Customer	**GPTC**		
Antenna Type	**THA-C3-5/15-1**		

ELEVATION PATTERN

RMS Gain at Main Lobe	**5.1 (7.08 dB)**	Beam Tilt	**0.50 Degrees**
RMS Gain at Horizontal	**5.1 (7.08 dB)**	Frequency	**79.00 MHz**
Calculated / Measured	**Calculated**	Drawing #	**05H051050-90**



Remarks:

EXHIBIT 6

Exhibit No.
EXHIBIT 7

Dielectric

Date	**09 Feb 2001**		
Call Letters	**WABW-DT**	Channel	**5**
Location	**PELHAM**		
Customer	**GPTC**		
Antenna Type	**THA-C3-5/15-1**		

TABULATION OF ELEVATION PATTERN

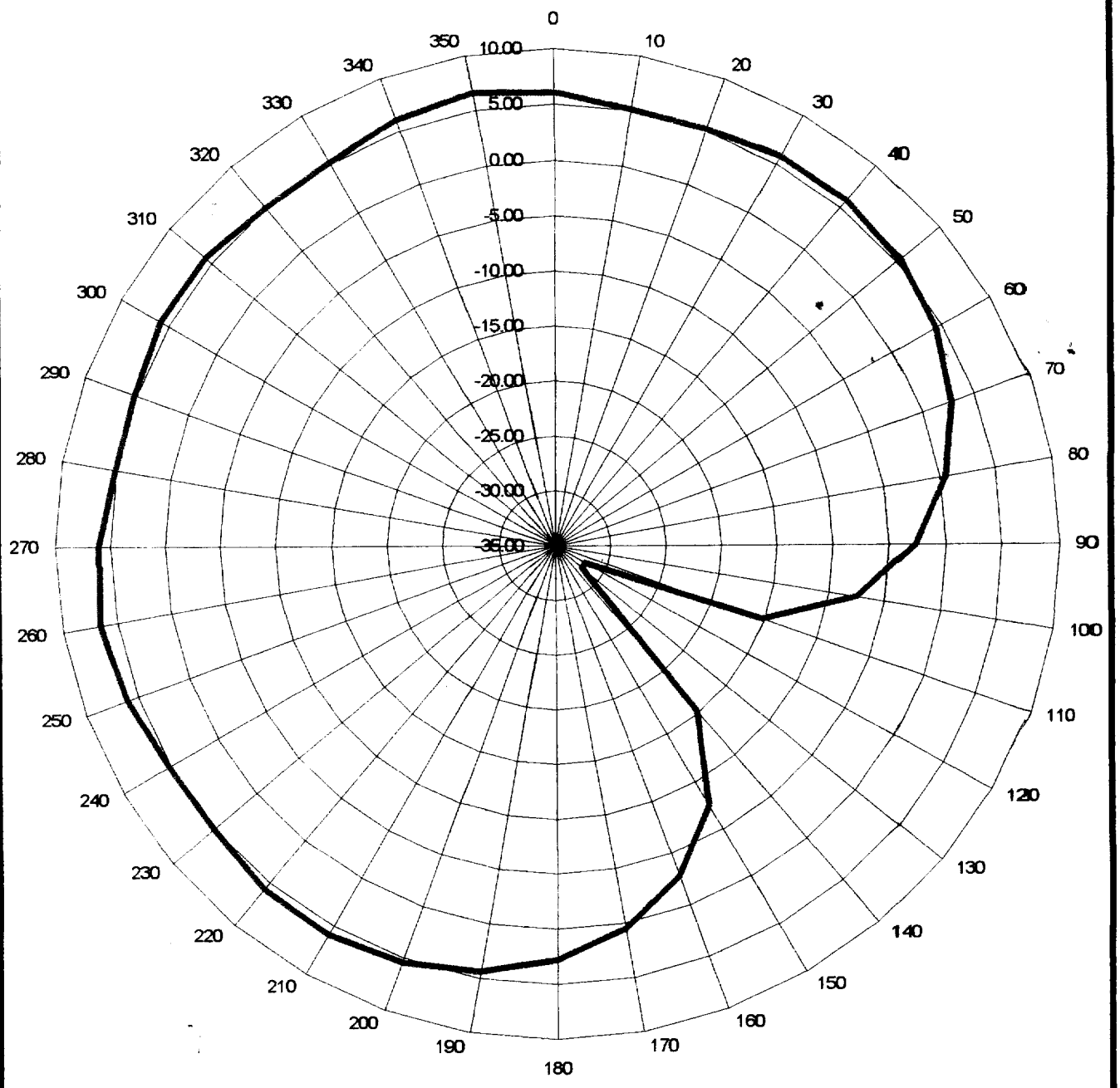
Elevation Pattern Drawing # **05H051050-90**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.138	2.4	0.960	10.6	0.202	30.5	0.138	51.0	0.139	71.5	0.108
-9.5	0.189	2.6	0.951	10.8	0.183	31.0	0.142	51.5	0.133	72.0	0.107
-9.0	0.243	2.8	0.942	11.0	0.165	31.5	0.144	52.0	0.126	72.5	0.105
-8.5	0.299	3.0	0.931	11.5	0.123	32.0	0.144	52.5	0.118	73.0	0.103
-8.0	0.356	3.2	0.920	12.0	0.091	32.5	0.142	53.0	0.110	73.5	0.101
-7.5	0.414	3.4	0.908	12.5	0.077	33.0	0.138	53.5	0.102	74.0	0.099
-7.0	0.471	3.6	0.896	13.0	0.084	33.5	0.133	54.0	0.093	74.5	0.096
-6.5	0.528	3.8	0.882	13.5	0.106	34.0	0.126	54.5	0.084	75.0	0.093
-6.0	0.584	4.0	0.868	14.0	0.131	34.5	0.117	55.0	0.075	75.5	0.090
-5.5	0.638	4.2	0.853	14.5	0.156	35.0	0.108	55.5	0.065	76.0	0.087
-5.0	0.690	4.4	0.838	15.0	0.179	35.5	0.097	56.0	0.056	76.5	0.084
-4.5	0.739	4.6	0.822	15.5	0.198	36.0	0.085	56.5	0.047	77.0	0.081
-4.0	0.786	4.8	0.805	16.0	0.215	36.5	0.073	57.0	0.038	77.5	0.077
-3.5	0.828	5.0	0.788	16.5	0.227	37.0	0.060	57.5	0.030	78.0	0.074
-3.0	0.867	5.2	0.770	17.0	0.236	37.5	0.047	58.0	0.023	78.5	0.070
-2.8	0.881	5.4	0.752	17.5	0.241	38.0	0.035	58.5	0.019	79.0	0.066
-2.6	0.895	5.6	0.733	18.0	0.243	38.5	0.026	59.0	0.020	79.5	0.062
-2.4	0.908	5.8	0.714	18.5	0.241	39.0	0.023	59.5	0.024	80.0	0.059
-2.2	0.920	6.0	0.694	19.0	0.236	39.5	0.029	60.0	0.030	80.5	0.055
-2.0	0.931	6.2	0.674	19.5	0.228	40.0	0.039	60.5	0.037	81.0	0.051
-1.8	0.941	6.4	0.654	20.0	0.217	40.5	0.052	61.0	0.044	81.5	0.047
-1.6	0.951	6.6	0.633	20.5	0.204	41.0	0.064	61.5	0.051	82.0	0.043
-1.4	0.960	6.8	0.612	21.0	0.188	41.5	0.077	62.0	0.057	82.5	0.040
-1.2	0.968	7.0	0.590	21.5	0.171	42.0	0.089	62.5	0.064	83.0	0.036
-1.0	0.975	7.2	0.569	22.0	0.152	42.5	0.100	63.0	0.070	83.5	0.032
-0.8	0.981	7.4	0.547	22.5	0.132	43.0	0.111	63.5	0.076	84.0	0.029
-0.6	0.986	7.6	0.525	23.0	0.110	43.5	0.120	64.0	0.081	84.5	0.025
-0.4	0.991	7.8	0.503	23.5	0.089	44.0	0.129	64.5	0.086	85.0	0.022
-0.2	0.994	8.0	0.481	24.0	0.066	44.5	0.136	65.0	0.090	85.5	0.019
0.0	0.997	8.2	0.459	24.5	0.044	45.0	0.143	65.5	0.094	86.0	0.016
0.2	0.999	8.4	0.436	25.0	0.022	45.5	0.149	66.0	0.098	86.5	0.013
0.4	1.000	8.6	0.414	25.5	0.002	46.0	0.153	66.5	0.101	87.0	0.010
0.6	1.000	8.8	0.392	26.0	0.020	46.5	0.156	67.0	0.103	87.5	0.008
0.8	0.999	9.0	0.370	26.5	0.039	47.0	0.158	67.5	0.105	88.0	0.006
1.0	0.997	9.2	0.348	27.0	0.057	47.5	0.159	68.0	0.107	88.5	0.004
1.2	0.994	9.4	0.326	27.5	0.074	48.0	0.159	68.5	0.108	89.0	0.002
1.4	0.991	9.6	0.305	28.0	0.089	48.5	0.158	69.0	0.109	89.5	0.001
1.6	0.986	9.8	0.283	28.5	0.103	49.0	0.156	69.5	0.110	90.0	0.000
1.8	0.981	10.0	0.262	29.0	0.115	49.5	0.153	70.0	0.110		
2.0	0.975	10.2	0.242	29.5	0.125	50.0	0.149	70.5	0.110		
2.2	0.968	10.4	0.222	30.0	0.132	50.5	0.145	71.0	0.109		

Remarks:

EXHIBIT 7

ERP - dBk



DIELECTRIC MODEL THA-C3-5/15-1
DIRECTIONAL ANTENNA (CARDIOID)
0.5 DEGREES ELECTRICAL BEAM TILT
MAXIMUM ANTENNA GAIN IN BEAM MAXIMUM 9.40 dB

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WABW-DT CHANNEL 5
PELHAM, GEORGIA

20010209 EXHIBIT 8

WABW-DT CHANNEL 5

PELHAM, GEORGIA

TABULATION OF RELATIVE FIELDS FOR PROPOSED DIRECTIONAL ANTENNA

AZIMUTH	RELATIVE FIELD	AZIMUTH	RELATIVE FIELD
N000°E	0.943	N180°E	0.652
N010°E	0.849	N190°E	0.782
N020°E	0.849	N200°E	0.877
N030°E	0.917	N210°E	0.927
N040°E	0.927	N220°E	0.917
N050°E	0.877	N230°E	0.849
N060°E	0.782	N240°E	0.849
N070°E	0.652	N250°E	0.943
N080°E	0.500	N260°E	1.000
N090°E	0.343	N270°E	0.943
N100°E	0.198	N280°E	0.849
N110°E	0.082	N290°E	0.849
N120°E	0.012	N300°E	0.917
N130°E	0.012	N310°E	0.917
N140°E	0.082	N320°E	0.849
N150°E	0.198	N330°E	0.849
N160°E	0.343	N340°E	0.943
N170°E	0.500	N350°E	1.000

MINIMUM OF 0.000 AT N125°E

MAXIMA OF 1.000 AT N260°E AND N350°E

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Exhibit F

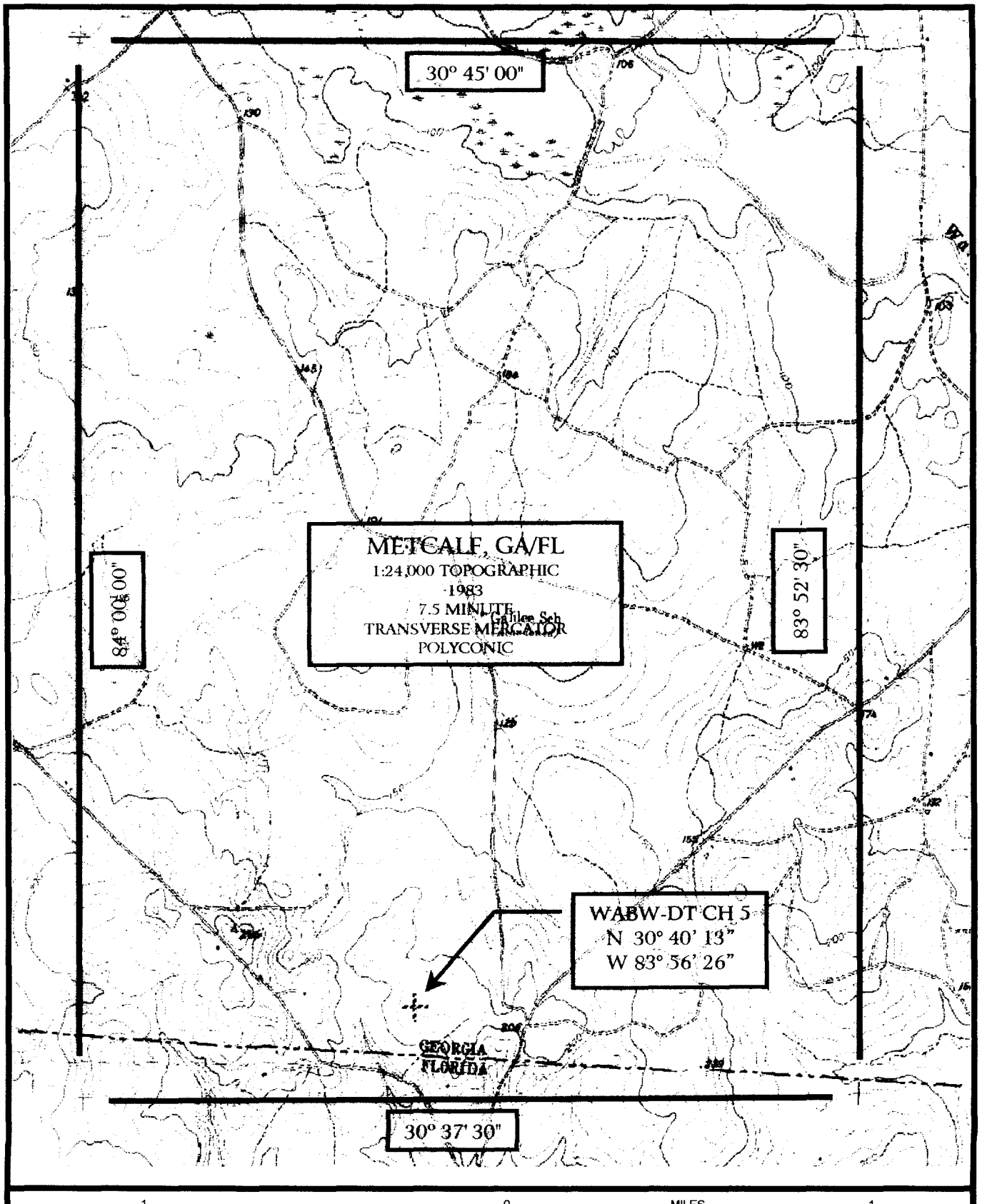

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EXHIBIT 10

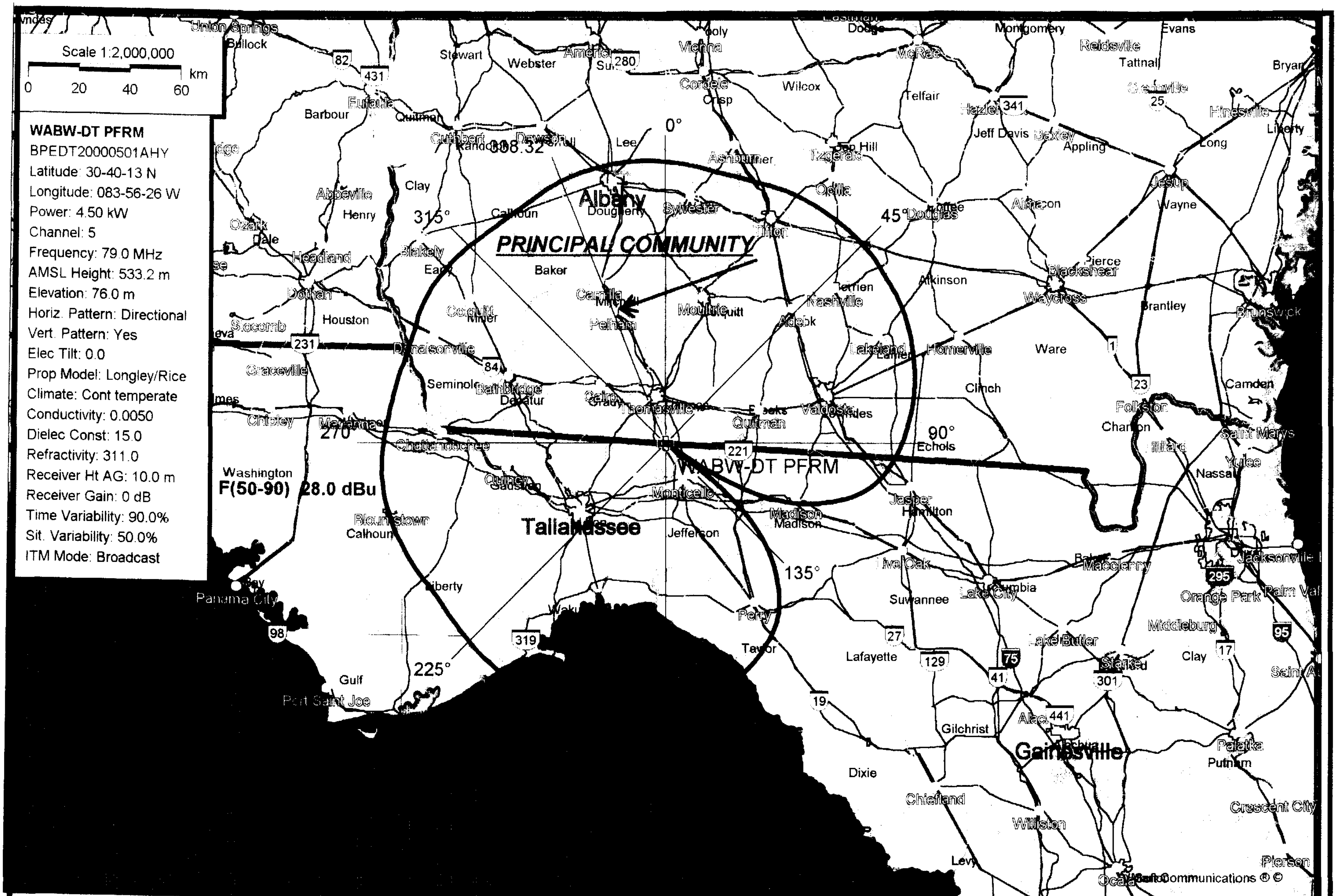

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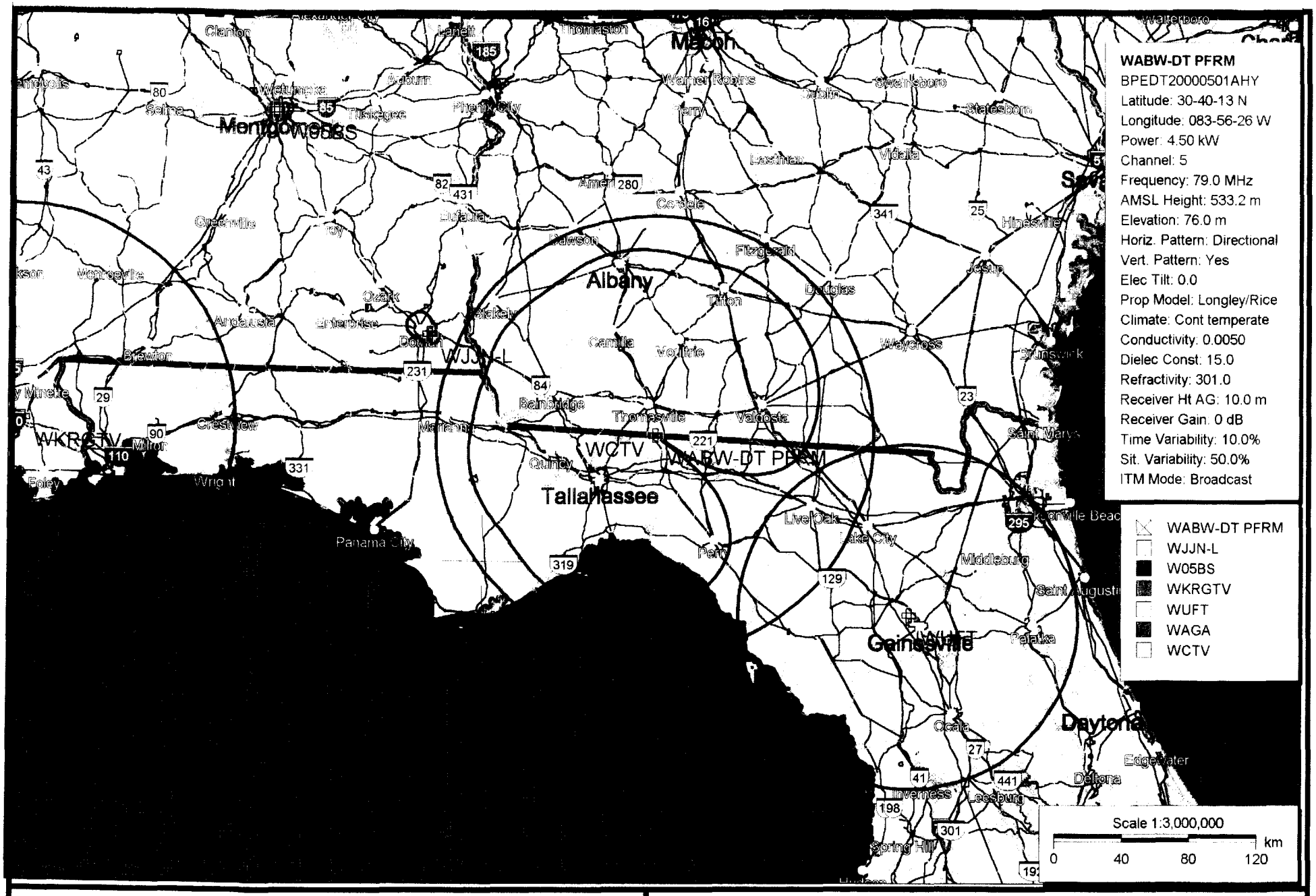
EXHIBIT 11



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WABW-DT CHANNEL 5

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EXHIBIT 12

V-Soft Communications Population Report

WABW-DT PFRM (5) Pelham, GA
TV Outgoing Interference Study
Signal Resolution: 2 km
Consider NTSC Taboo: Yes
KWX error points are considered to be interference free coverage.
# of radials computed for contours: 72
Contours calculated using 8 radial HAAT.
LR Profile Spacing Increment: 1.0 km
Masked interference points are being counted as interference.
Using NTSC lptv/translators D/U rules.

Study Date: 2/9/01

Stations which receive interference:

Call Letters	H Units	Population	Area (sq. km)
WJJN-L	7821	19793	625.72
WKRGTV	9815	25140	205.44
WUFT	4904	10707	1919.76
WAGA	3941	9596	262.15

Totals for WABW-DT PFRM
Total population to which interference is caused: 65236
Total number of housing units to which interference is caused: 26481

	Housing Units	Population
Florida		
Columbia County		
WUFT	2	2
Dixie County		
WUFT	283	366
Hamilton County		
WUFT	327	821
Lafayette County		
WUFT	159	996
Okaloosa County		
WKRGTV	9,734	24,942
Suwannee County		
WUFT	3,018	7,309
Taylor County		
WUFT	1,115	1,213

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WABW-DT CHANNEL 5
PELHAM, GA
20010209 EXHIBIT 12A

	Housing Units	Population
Georgia		
Jones County		
WAGA	6	15
Lamar County		
WAGA	19	57
Meriwether County		
WAGA	59	193
Monroe County		
WAGA	760	1,992
Pike County		
WAGA	64	148
Putnam County		
WAGA	7	21
Troup County		
WAGA	71	171
Upson County		
WAGA	2,955	6,999

	Housing Units	Population
Alabama		
Conecuh County		
WKRGTV	33	79
Covington County		
WKRGTV	40	108
Dale County		
WJJN-L	2,244	5,571
Escambia County		
WKRGTV	8	11
Geneva County		
WJJN-L	211	481
Henry County		
WJJN-L	1,187	2,970
Houston County		
WJJN-L	4,179	10,771

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WABW-DT CHANNEL 5

PELHAM, GA

20010209

EXHIBIT 13

V-Soft Communications Population Report

WKRGTV (05+) Mobile, AL
TV Incoming Interference Study
Signal Resolution: 2 km
Consider NTSC Taboo: Yes
KWX error points are considered to be interference free coverage.
# of radials computed for contours: 72
Contours calculated using 8 radial HAAT.
LR Profile Spacing Increment: 1.0 km
Interference considered within the reference station's noise limited contour.
Using NTSC lptv/translators D/U rules.
Threshold for reception: 47.0

Study Date: 2/9/01

Percentages calculated using a baseline population of 1,314,313.

Stations considered which do not cause interference:

WJJN-L (05Z)
W05BS (05Z)
WDSU (06Z)

Stations which were not considered:

WABW-DT PFRM (5)

Call Letters	City	State	Dist	Bear
WJJN-L (05Z)	Dothan	AL	245.2	76.0
W05BS (05Z)	Montgomery	AL	235.8	37.4
WDSU (06Z)	New Orleans	LA	220.4	248.7
WABW-DT PFRM (5)	Pelham	GA	372.7	89.3

Totals for WKRGTV (05+)

Calculation Area Population:	1,314,627	(50038.8	sq. km)
Not Affected by Terrain Loss:	1,308,723	(49210.2	sq. km)
Total NTSC Interference:	0	(0.0	sq. km)
DTV Only Interference:	0	(0.0	sq. km)
Total DTV Interference:	0	(0.0	sq. km)
Interfered Population:	0	(0.0	sq. km)
Interference Free:	1,308,723	(49210.2	sq. km)

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PELHAM, GA
20010209 EXHIBIT 13A

Percent Interference:	0.00	
Terrain Blocked Population:	5,904	(828.6 sq. km)
Contour Area Population:	1,314,313	

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EXHIBIT 14